

Information Bulletin

Grade 3 Mathematics
1997-98

AE-CUR
ACH

Alberta
EDUCATION

This document was written primarily for:

Students	✓
Teachers	✓ Grade 3 Teachers
Administrators	✓
Parents	
General Audience	
Others	✓ Superintendents

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This bulletin contains general information about the Provincial Achievement Testing Program and information specific to the Grade 3 Mathematics Achievement Test. **This bulletin replaces all previous bulletins.**

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September 1997

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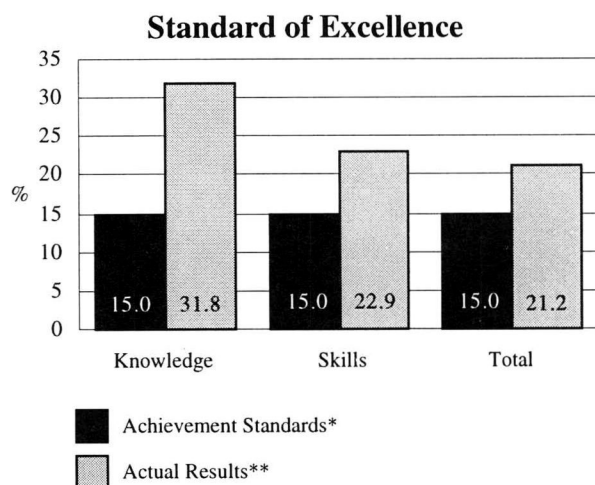
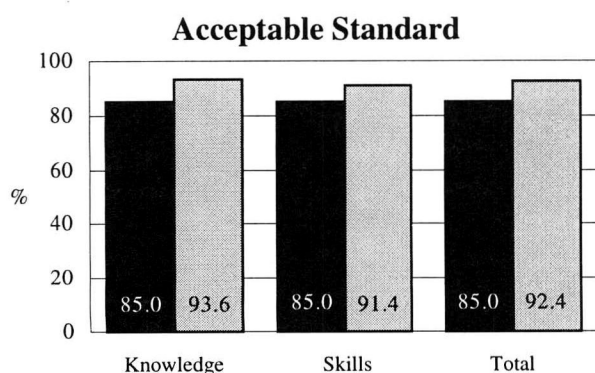
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Looking Back: Highlights of 1997

This information provides teachers, school administrators, and the public with an overview of the results for the June 1997 Grade 3 Mathematics provincial assessment. It complements the detailed school and jurisdiction reports.



*the percentage of students in the province expected to meet the acceptable standard and the standard of excellence

**the percentage of students in the province who met the standards (based on those who wrote)

Who Wrote the Test?

All students registered in Grade 3 were expected to write the 1997 Mathematics Achievement Test. A total of 37 957 students completed the test in English. In 1997, only a small proportion of students in Grade 3 did not write the test: 2.5% of students were absent and 2.8% of students were excused from writing by their superintendent.

What Was the Test Like?

The test consisted of three sections; 45 questions were integrated in a three-part narrative. Five general learner expectations were assessed. The questions were classified in two reporting categories: Knowledge and Skills.

How Well Did Students Do?

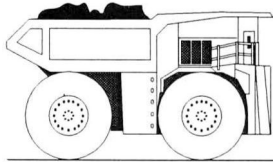
In 25.8% of the schools, the percentage of students meeting the *acceptable standard* was significantly above expectations for the province. In 69.5% of the schools, the percentage of students meeting the *acceptable standard* was not significantly different from provincial expectations. In 4.7% of schools, the percentage of students meeting the *acceptable standard* was significantly below provincial expectations. Schools where fewer than five students wrote the Grade 3 test are not included in these school calculations.

The results presented in this report are based on scores achieved by all students except those who wrote the test in French. Results for students who wrote in French are reported separately. Students' overall performance in Grade 3 Mathematics was better than expected.

Has Achievement Changed Since Last Year?

Results for Grade 3 Mathematics in 1997 are comparable to those obtained in 1996. More students than expected met the *acceptable standard* and the *standard of excellence* on both components of the test and on the total test.

1. On the way to Pioneer Village, we saw trucks carrying dirt.



One truck has a mass of 220 tonnes. It is carrying 187 tonnes of dirt.

What is the mass of the truck and dirt together?

- ☐ 417 t
* ☐ 407 t
☐ 307 t
☐ 287 t

Use this information to answer question 13.

On the way home, we counted the number of animals we saw from the car. We made this tally sheet.

Mom	Ryan	Sarah	Cathy

13. What is the total number of tallies on the chart?

- ☐ 23
☐ 25
☐ 27
* ☐ 29

Commentary and Sample Questions from the Grade 3 Mathematics Achievement Test 1997

Sample questions from the 1997 test and accompanying discussion are provided to highlight the strengths and weaknesses of students meeting the *acceptable standard* and the *standard of excellence*. For each sample question, there is an asterisk beside the correct answer.

Note that the questions appear as they did on the 1997 Achievement Test.

Acceptable Standard

For **question 1**, students were required to add two three-digit numbers, with one regrouping.

Almost 85% of students meeting the *acceptable standard* but not the *standard of excellence* were able to do this.

For **question 13**, students were required to add the number of tallies on a tally chart.

Over 90% of students meeting the *acceptable standard* but not the *standard of excellence* could do this.

Overall, the strengths of students who met the *acceptable standard* include the ability to

- construct a bar graph
- recognize the amount of 100s, 10s, and 1s from pictorial representations in order to express standard form
- identify a new time after adding on an interval of one hour
- identify multiples of twos, fives, and tens
- identify three-dimensional figures

The difficulties that students meeting the *acceptable standard* experienced were in their ability to

- use more than one step to solve a problem
- calculate a sum of money after making purchases
- interpret an illustration in order to make a comparison
- determine possible combinations of members of two sets

Standard of Excellence

For **question 12**, students were required to calculate the difference in temperature after the passage of one hour.

Over 90% of the students who met the *standard of excellence* were able to do this.

Students who met the *standard of excellence* had few difficulties with this assessment. Their strengths were in their ability to

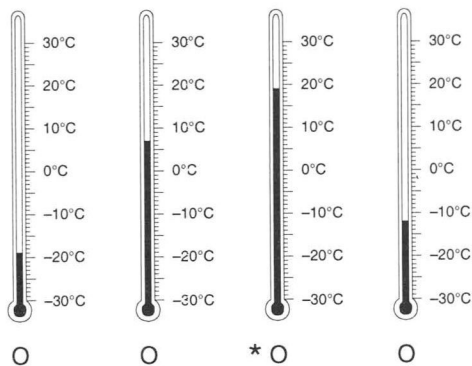
- interpret information on charts, diagrams, or pictures to solve problems
- measure the passage of time in minutes
- calculate a sum of money after interpreting a chart
- use appropriate operations, with and without regrouping, in order to solve problems

Use this information to answer question 12.

At one o'clock, the temperature in the cabin was 12°C . A fire was burning in the fireplace.

One hour later, the temperature was 7° higher.

12. Which thermometer shows the temperature one hour later?



Reporting the Results

On August 22, 1997, each school jurisdiction received electronically a district report and individual school reports regarding their students' achievement, as well as guidelines for interpreting these results in relation to provincial standards.

To facilitate reflection on school programs, we expect that results will be shared with all school staff (not just teachers of grades 3, 6, and 9), as well as with parents and the community.

Two copies of an individual profile for each student will be sent to the school that the student will attend in September. We expect that the Parent Copy will be given to parents and the School Copy will remain with the student's record.

The following Achievement tests are secured:

Grade 6 Mathematics, 1995

ALL tests from 1996 and 1997

Looking Ahead: What is Upcoming for 1998

General Information

Purpose

The purpose of the Achievement Testing Program is to

- determine if students are learning what they are expected to learn
- report to Albertans how well students have achieved provincial standards at given points in their schooling
- assist schools, jurisdictions, and the province in monitoring and improving student learning

Enhance Student Learning

Careful examination and interpretation of the results can help identify areas of relative strength and weakness in student achievement. Teachers and administrators can use this information in planning and delivering relevant and effective instruction in relation to broad, general learnings in the *Program of Studies*.

Enable Accountability

Alberta Education and school jurisdiction personnel are responsible for ensuring that the highest quality education is provided to all students in the province.

Information about achievement is provided to

- schools and jurisdictions
- parents
- the public

so that they may know how well students in their schools are meeting local targets and provincial expectations.

Interpreting Results

Achievement tests assess only part of what is to be learned. In addition, many factors contribute to student achievement. Personnel at the jurisdiction and school levels are in the best position to appropriately interpret, use, and communicate jurisdiction and school results in the local context.

The Provincial Achievement Testing Program provides teachers, parents, students, school administrators, Alberta Education, and the public with information about what students know and can do in relation to provincial standards. Group results are reported at school, district, and provincial levels to improve learning opportunities for students.

The assessments are administered in two subject areas at Grade 3—language arts and mathematics—and in four subject areas at Grades 6 and 9—language arts, mathematics, social studies, and science.

The assessments are based on provincial standards that reflect important learnings in the subject areas listed above. Classroom teachers from across the province are extensively involved in developing and field testing the assessment instruments.

Administering the Tests

Information about the nature of the provincial assessments as well as their administration to special needs students can be found in the *General Information Bulletin, Achievement Testing Program*, which is mailed each fall to all superintendents and principals.

Schedule

The schedule for administering achievement tests in the 1997–98 school year is mandated.

January 1998

The January achievement tests for Grade 9 schools on a semester system must be administered according to the following schedule:

Wednesday, January 21	9:00 to 11:30 A.M.	Grade 9 English Language Arts Part A
Thursday, January 22	9:00 to 10:45 A.M.	Grade 9 Science
Friday, January 23	9:00 to 11:30 A.M.	Grade 9 Français/French Language Arts Partie A
Monday, January 26	9:00 to 10:45 A.M.	Grade 9 English Language Arts Part B
Tuesday, January 27	9:00 to 10:45 A.M.	Grade 9 Mathematics
Wednesday, January 28	9:00 to 10:45 A.M.	Grade 9 Social Studies
Thursday, January 29	9:00 to 10:45 A.M.	Grade 9 Français/French Language Arts Partie B

May 1998

The written component of the language arts achievement tests for grades 3, 6, and 9 must be administered according to the following schedule:

Tuesday, May 26	9:00 to 10:30 A.M.	Grade 3 English Language Arts Part A
	9:00 to 11:30 A.M.	Grades 6 and 9 English Language Arts Part A
Thursday, May 28	9:00 to 11:30 A.M.	Grades 6 and 9 Français/French Language Arts Partie A

June 1998

The machine-scorable component of achievement tests for grades 3, 6, and 9 must be administered according to the following schedule:

Monday, June 15	9:00 to 10:30 A.M.	Grade 3 English Language Arts Part B
	9:00 to 10:30 A.M.	Grade 6 English Language Arts Part B
Wednesday, June 17	9:00 to 10:30 A.M.	Grade 3 Mathematics
	9:00 to 10:30 A.M.	Grade 6 Mathematics
Thursday, June 18	9:00 to 10:30 A.M.	Grade 6 Social Studies
	9:00 to 10:45 A.M.	Grade 9 Français/French Language Arts Partie B
Friday, June 19	9:00 to 10:45 A.M.	Grade 9 Science
Monday, June 22	9:00 to 10:30 A.M.	Grade 6 Science
	9:00 to 10:45 A.M.	Grade 9 English Language Arts Part B
Tuesday, June 23	9:00 to 10:30 A.M.	Grade 6 Français/French Language Arts Partie B
	9:00 to 10:45 A.M.	Grade 9 Mathematics
Wednesday, June 24	9:00 to 10:45 A.M.	Grade 9 Social Studies

The tests that will be administered each year are:

Grade 3

English Language Arts (*Part A: Writing*
and *Part B: Reading*)
Mathematics (English and French forms)

Grade 6

English Language Arts (*Part A: Writing*
and *Part B: Reading*)
Français/French Language Arts
(*Partie A: Production écrite* and
Partie B: Lecture)
Mathematics (English and French forms)
Science (English and French forms)
Social Studies (English and French forms)

Grade 9

English Language Arts (*Part A: Writing*
and *Part B: Reading*)
Français/French Language Arts
(*Partie A: Production écrite* and
Partie B: Lecture)
Mathematics (English and French forms)
Science (English and French forms)
Social Studies (English and French forms)

Students in French Programs

All students in French programs must write English Language Arts, French Language Arts, and French versions of other achievement tests if their language of instruction is French. Alberta Education will send a checklist to schools in January requesting an indication of how many English or French tests are required. These forms must be returned through jurisdiction offices by mid-February.

Marking Achievement Tests Locally

Teachers are able to mark the tests before returning them to Alberta Education. Teachers can use the results as part of an individual student's year-end assessment, as well as for planning instruction.

Standards: Curriculum, Assessment, Achievement

The move toward results-based curricula has re-emphasized the need for a clear delineation of standards and their purpose. All standards and all methods of setting standards require judgement.

The process of setting a standard can only be as good as the judgements that go into it. The standard will depend on whose judgements are involved in the process. In this sense, all standards are subjective. Yet once a standard has been set, the decisions based on it can be made objectively. Instead of a separate set of judgements for each test-taker, you will have the same set of judgements applied to all test-takers. Standards cannot be objectively determined, but they can be objectively applied.¹

Definitions

The Achievement Testing Program is directly concerned with three different but related standards. These provincial standards are curriculum standards, assessment standards, and achievements standards. Local targets are also described in this section.

- **Curriculum Standards** are the expected student learnings sequenced into grade levels. They include broad statements of knowledge, skills, and attitude expectations against which student performance is judged. These standards are established in the process of curriculum development and are found in the *Program of Studies* document produced for each subject.
- **Assessment Standards** are the criteria adopted for judging actual student achievement relative to curriculum standards. They are ultimately expressed

¹ Passing Scores; Samuel A. Livingston, Michael J. Zieky; Educational Testing Service, 1982.

and applied to test scores. They are derived from answers to questions such as: What scores must a student obtain or how many questions on a given test must a student answer correctly in order for his/her performance on the test to be judged as acceptable or excellent?

- **Achievement Standards** are judgements that specify what percentages of students are expected to achieve an acceptable and an excellent level of performance in relation to each course of studies; i.e., to the relevant curriculum standards. They reflect community judgement about what is an appropriate expectation for students. It is important to point out that this judgement is not a prediction of the percentage of students who will actually achieve acceptable or excellent levels of performance, but rather a specification of the percentage of students at a given grade or year in school who are *expected* to achieve the acceptable (85%) or excellent standard (15%). **The 85% of students expected to meet the acceptable standard includes those who meet the standard of excellence.** These standards apply to school, jurisdiction, and provincial performance.
- **Local targets** are goals set in schools/districts to focus plans for helping students learn what is expected by the provincial government. These local targets reflect the specific needs of students, the views of teachers, school administration, and the local community, and the resources available to provide learning opportunities for students.

Confirming Standards

Confirming standards is a process whereby judgements about students' performance on the assessment are made in relation to provincial standards. For more information on confirming standards procedures, refer to Appendix A of the *Achievement Testing Program Provincial Report, June 1993 Administration*. For information on the selection of teachers for participation in the confirming standards process, refer to the current *General Information Bulletin, Achievement Testing Program*.

Purpose of Assessment Standards

The provincial standards are the basis upon which we assess how well students have learned mathematics by the end of Grade 3. These standards reflect the essential learnings that all Alberta students are expected to achieve. Provincial standards are useful, therefore, for assessing Grade 3 students in all types of school programs—public, private, and home education. By comparing actual results with provincial standards, decisions can be made about whether achievement is, in fact, “good enough.”

Description of the Mathematics Assessment Standards

The following statements describe what is expected of Grade 3 students who are meeting the *acceptable standard* or the *standard of excellence* on independent work at the end of the Grade 3 Mathematics program. The statements represent the standards against which student achievement will be measured.

<i>Acceptable Standard</i>	<i>Standard of Excellence</i>
<p>Students who meet the <i>acceptable standard</i> in Grade 3 Mathematics have a basic understanding of mathematical concepts and related procedural knowledge. They are able to demonstrate their understanding in concrete, pictorial, and symbolic modes, and to translate from one mode to another. For example, students meeting the <i>acceptable standard</i> know that the solution to the number sentence $12 - 3 = \square$ is 9 and demonstrate their understanding in concrete and pictorial ways. They can write related number sentences and verify them, using manipulatives and diagrams. Students who meet the <i>acceptable standard</i> build on a foundation of previous learnings and derive meaning from problem-solving experiences in their world.</p>	<p>Students who meet the <i>standard of excellence</i> in Grade 3 Mathematics have a superior understanding of mathematical concepts and related procedural knowledge. They are consistently able to demonstrate their understanding in concrete, pictorial, and symbolic modes, and easily translate from one mode to another. They are able to create problem situations to illustrate concepts and to analyze and explain relationships among concepts. For example, students meeting the <i>standard of excellence</i> can write all number sentences related to $12 - 3 = \square$, justify them using manipulatives and diagrams, and create problem situations to exemplify the relationship. They are able to explain how $12 \div 3 = \square$ is related to $12 - 3 = \square$; also, they can explain why these are not defined as related number sentences. Students who meet the <i>standard of excellence</i> build on a foundation of previous learnings and derive meaning from problem-solving experiences in their world.</p>
<p>Students meeting the <i>acceptable standard</i> reflect upon, explain, and defend their ideas in an understandable way, using objects, diagrams, everyday language, spoken and written symbols, and, when appropriate, technology.</p>	<p>Students meeting the <i>standard of excellence</i> reflect upon, assess, explain, and defend their ideas and those of others, orally and in writing, using objects, diagrams, everyday and technical language, numbers and number sentences, and, when appropriate, technology.</p>
<p>Students meeting the <i>acceptable standard</i> perform the mathematical operations and procedures that are fundamental to the program, and apply what they know in solving simple problems in familiar settings. They describe, to a limited degree, the steps they use to solve a particular problem.</p>	<p>Students meeting the <i>standard of excellence</i> perform the mathematical operations and procedures that are fundamental to the program, and apply what they know in solving novel problems. They solve and create unique problems, justify their solution, and suggest other solutions and/or strategies. They clearly describe the steps that they use.</p>
<p>Students meeting the <i>acceptable standard</i> have a positive attitude about mathematics in their daily lives. They demonstrate confidence when using simple mathematical procedures, and when applying problem-solving strategies in familiar settings.</p>	<p>Students meeting the <i>standard of excellence</i> have a positive attitude toward mathematics and show confidence in performing mathematical tasks. They are self-motivated risk-takers who persevere when solving novel problems. They demonstrate initiative in trying new methods, and are creative in their approach to problem solving.</p>

Grade 3 Mathematics Assessment

General Description

The 1998 Grade 3 Mathematics Achievement Test will consist of two components. The multiple-choice component has 40 questions integrated in a two-part narrative. Each part has 20 questions. Each part is designed to be completed in 30 minutes. Additional time of up to 30 minutes may be provided for students to complete the test. A short break should be provided between Part A and B. The second component, Timed Number Facts, has three sub-tests—35 addition facts (to 18), 35 subtraction facts (to 18), and 25 multiplication facts (to 49). Each sub-test is designed to be completed in two minutes. A break should be provided between each sub-test. It is suggested that the multiple-choice component be administered in the morning, followed by the timed number facts in the afternoon.

As a result of the changes to the Mathematics Program of Studies, the number of questions on the test that require more time for reflection will be greater than in previous years. Therefore, the number of multiple-choice questions on the test has been reduced to 40. Added to the test for 1998 is the timed number facts component.

Those students for whom the four-function calculator is a familiar classroom tool **are encouraged, but not required**, to use a calculator when writing the multiple-choice component of the Grade 3 Mathematics Achievement Test; however, they **shall not** use calculators when writing the Timed Number Facts component of the test.

The blueprint for the multiple-choice component is on the next page. The practice

questions on pages 13 to 24 and page 26 may be used by teachers to help their students prepare for the provincial assessment.

Students will record answers to all questions directly in their test booklets.

Reporting Categories Indicators

The following points briefly highlight the learnings for each reporting category.

Knowledge

The student

- recalls facts, concepts, terminology
- knows number facts
- recognizes place value
- knows procedures for computations
- knows procedures for constructing and measuring
- knows how to use a calculator/computer
- knows mental computation, estimation strategies

Skills

The student

- represents basic mathematical concepts in concrete, pictorial, and/or symbolic modes
- applies a mathematical concept in familiar and new situations
- creates new problem situations that exemplify a concept
- justifies answers
- judges reasonableness of answers
- communicates why and when certain strategies are appropriate
- applies basic mathematical concepts to solve problems
- demonstrates and applies relationships among numbers, operations, number forms, and modes of representation
- explains relationships among geometric forms
- uses a variety of problem-solving strategies

Components	Questions	Time	Weighting for Overall Score
Multiple-Choice Part A and B	40	60 minutes	approximately 90%
Timed Number Facts	95	6 minutes	approximately 10%

Blueprint

This blueprint shows the reporting categories under which questions are classified. The number of questions in each category is approximate.

General Outcomes*	Knowledge	Skills	Number of Questions	Percent of Test
Number <ul style="list-style-type: none"> Develop a number sense for whole numbers 0 to 1000, and explore fractions (fifths and tenths) Apply an arithmetic operation (addition, subtraction, multiplication or division) on whole numbers, and illustrate its use in creating and solving problems Use and justify an appropriate calculation strategy or technology to solve problems 	5	9	14	35
Patterns and Relations <ul style="list-style-type: none"> Investigate, establish and communicate rules for numerical and non-numerical patterns, including those found in the home, and use these rules to make predictions 	2	4	6	15
Shape and Space <ul style="list-style-type: none"> Estimate, measure and compare, using whole numbers and primarily standard units of measure Describe, classify, construct and relate 3-D objects and 2-D shapes Use numbers and direction words to describe the relative positions of objects in one dimension, using everyday contexts 	4	8	12	30
Statistics and Probability <ul style="list-style-type: none"> Collect first- and second-hand data, display the results in more than one way, and interpret the data to make predictions Use simple probability experiments, designed by others, to explain outcomes 	3	5	8	20
Number of Questions	14	26	40	100
Percent of Test	35	65	100	100

*From the Alberta Program of Studies for K-9 Mathematics, June 1996

Standards for the 1998 Grade 3 Mathematics Achievement Test will be reviewed to ensure they reflect the dimensions of the Alberta Program of Studies, 1996.

Practice Questions

The practice questions on pages 13 to 24 appeared on the 1997 Achievement Test and may be used with students. Other questions from the 1997 Achievement Test remain secured. The practice questions, along with questions from previous bulletins, can be used to prepare students for the current Achievement Test. These questions illustrate the nature and complexity of those that will appear on the 1998 test, although the emphasis will be different. The key and descriptors for the multiple-choice practice questions are on page 25. The practice timed number facts questions appear on page 26.

- Students will need a pencil, eraser, and scrap paper. Students may use calculators and manipulatives on the multiple-choice component only.
- Read the text that appears at the beginning to your students.
- Instruct the students to read and complete the questions independently.
- Direct the students to fill in the circle in front of the answer that has been chosen.
- Students complete the timed number facts directly on the page.

SECTION A

Follow along as your teacher reads this page aloud.

A TRIP TO PIONEER VILLAGE

Hi. My name is Sarah. One Saturday morning, my parents told me that they had a day of fun planned for the whole family. We were going to Pioneer Village. I remembered hearing my teacher talk about Pioneer Village. It sounded exciting. She said it was a place where pioneers used to live. People could visit the village to see what life was like in the past.

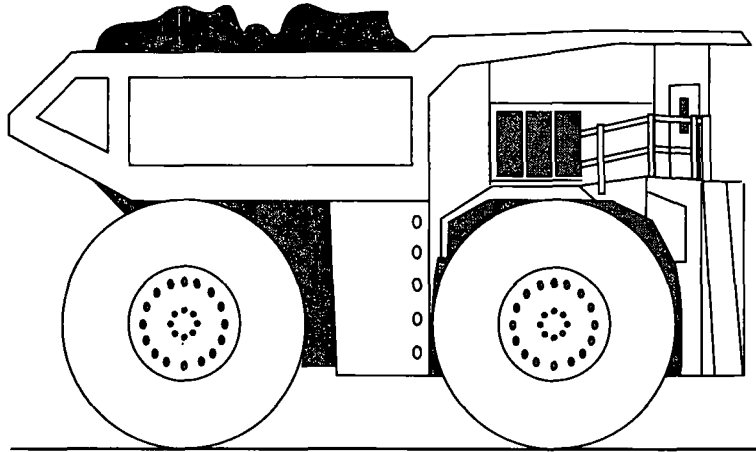
Pioneer Village was a long way out of town, so we needed to get started right away. We got ready and all climbed into the van.

“Fasten your seatbelts,” said my father. “Away we go!”

We all laughed and shouted, “YES!”



1. On the way to Pioneer Village, we saw trucks carrying dirt.

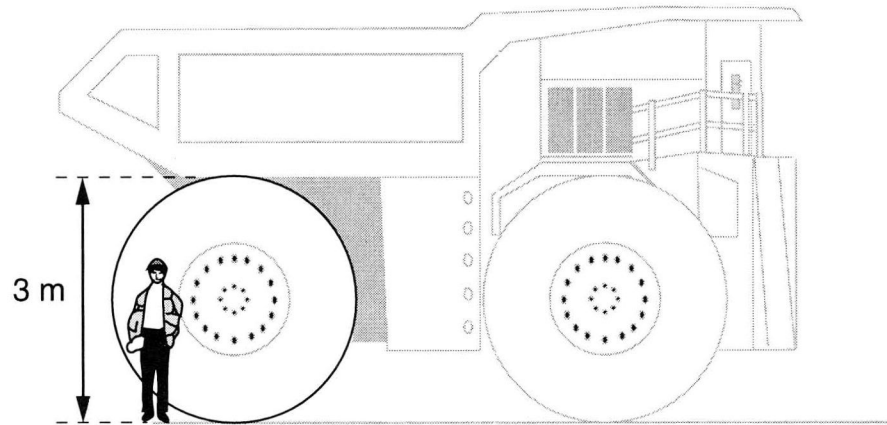


One truck has a mass of 220 tonnes. It is carrying 187 tonnes of dirt.

What is the mass of the truck and dirt together?

- ☐ 417 t
- ☐ 407 t
- ☐ 307 t
- ☐ 287 t

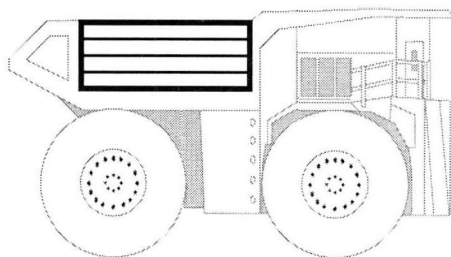
2. Each tire on the truck is 3 metres high.
Look at the person beside the tire.



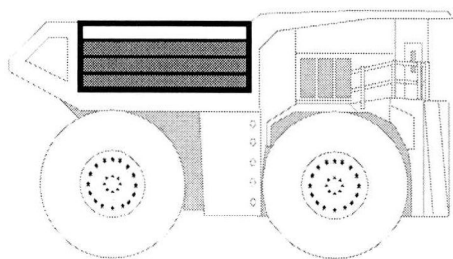
Estimate the height of the person.

- ☐ 1 m
- ☐ 1.5 m
- ☐ 2 m
- ☐ 2.5 m

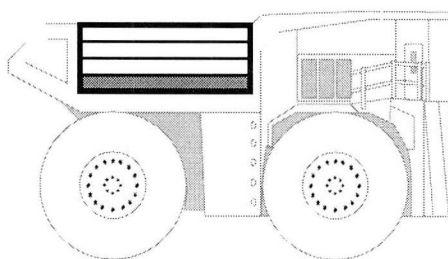
3. My brother Ryan noticed another truck only half full of dirt.



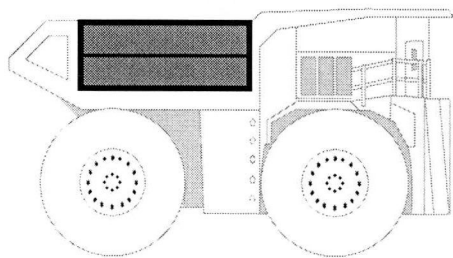
Which picture shows the truck half full of dirt?



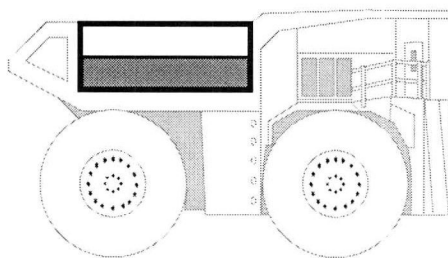
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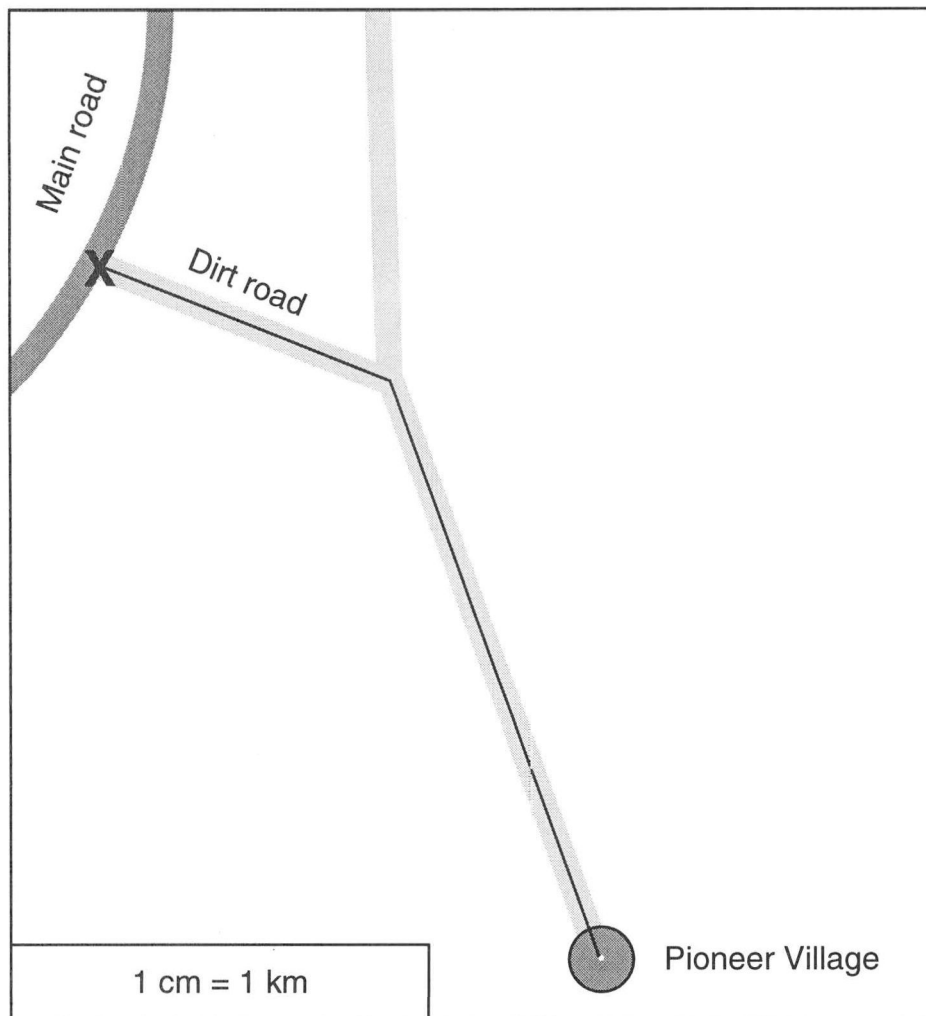


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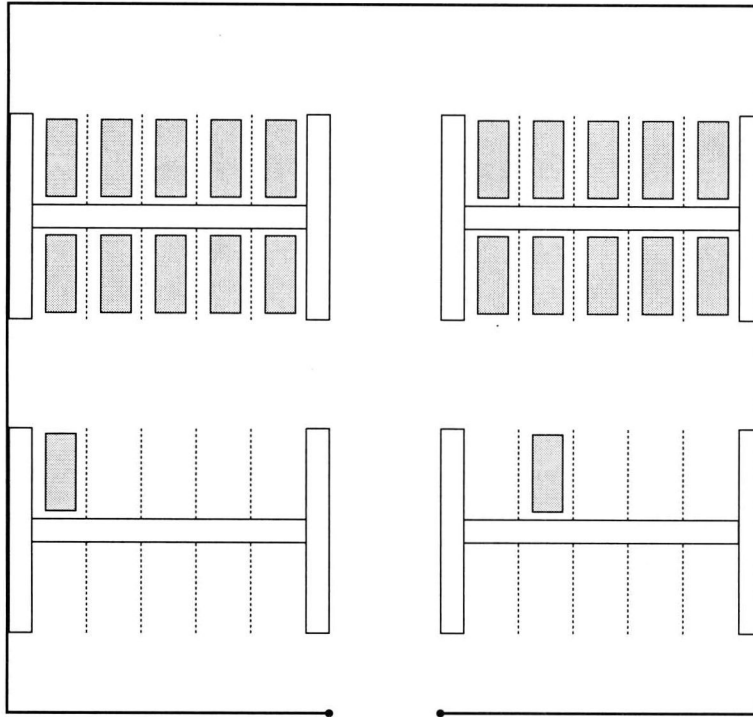
4. My dad turned off the main road and onto a dirt road to get to Pioneer Village.



From the X, how far did we have to travel to Pioneer Village?

- ☐ 24 km
- ☐ 12 km
- ☐ 8 km
- ☐ 4 km

5. The parking lot at the village is shown below.



I started counting cars. I counted, "5, 10, 15."



I am counting by

- ☐ ones
- ☐ twos
- ☐ fives
- ☐ tens

Use this information to answer question 6.

ADMISSION to PIONEER VILLAGE

Adults—\$5.00 each

Children (7 to 17)—\$2.00 each

Children (Under 7)—FREE

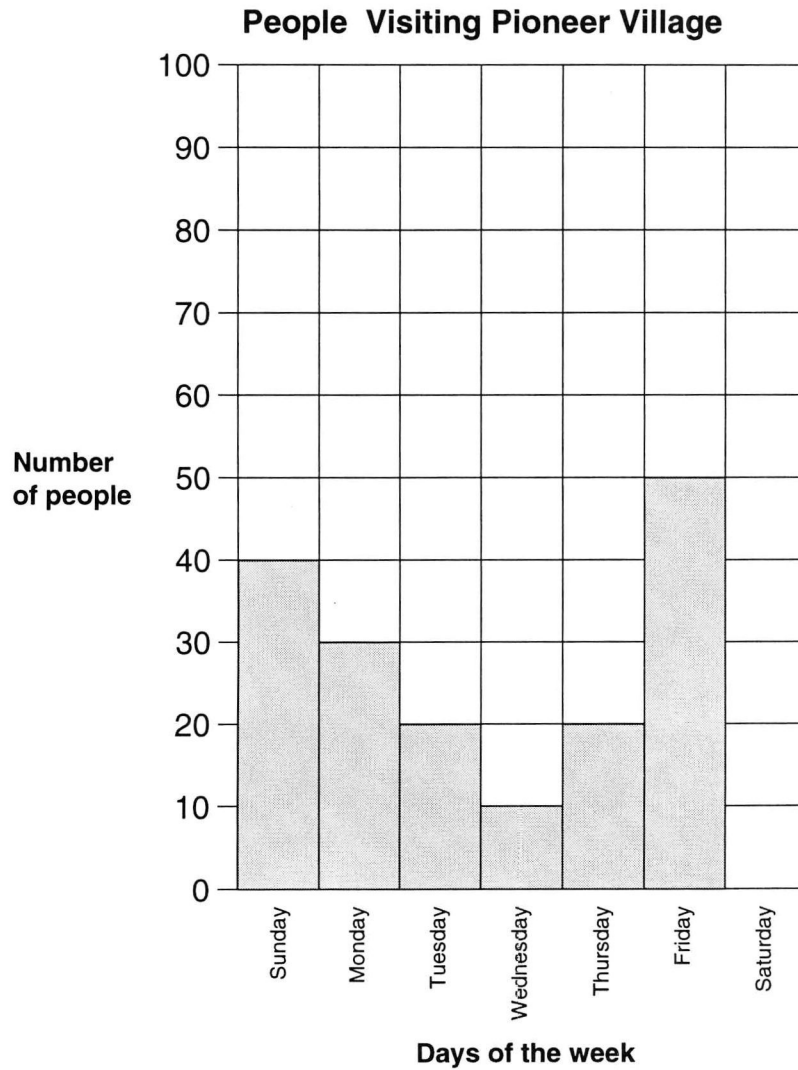
6. My family has two adults and three children. The children's ages are 12, 9, and 6 years.

How much does my family have to pay?

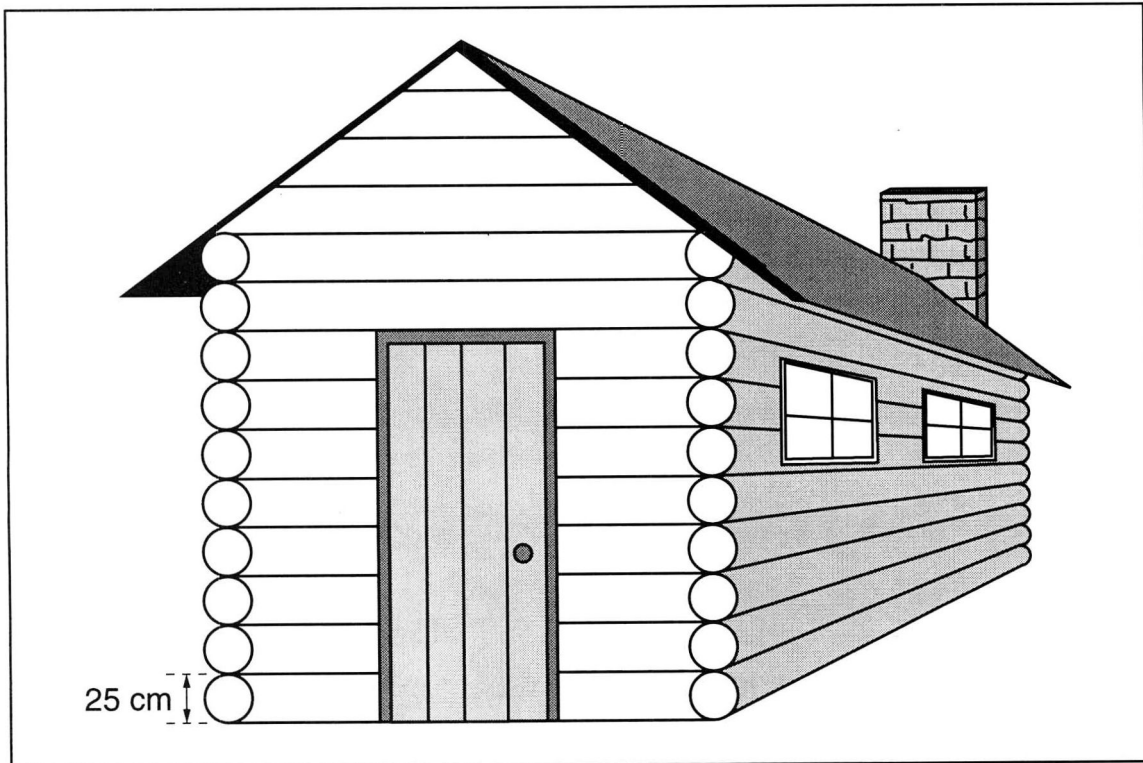
- ☐ \$7.00
- ☐ \$12.00
- ☐ \$14.00
- ☐ \$16.00

7. I saw a graph showing the number of people who visited the village that week. Eighty people visited on Saturday.

Shade in the graph for Saturday.



Use this picture to answer questions 8 and 9.



8. The cabin is made of logs.

The logs are shaped like

- ☐ cylinders
- ☐ spheres
- ☐ cones
- ☐ cubes

9. The end of each log is 25 cm high.

When 10 logs are stacked one on top of the other, their total height is

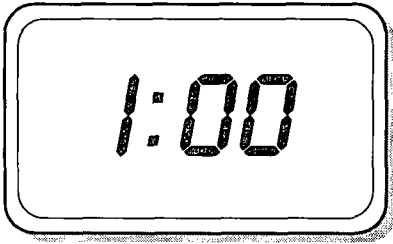
- ☐ 35 cm
- ☐ 50 cm
- ☐ 125 cm
- ☐ 250 cm

Use this information to answer questions 10 and 11.

At one o'clock, the temperature in the cabin was 12°C . A fire was burning in the fireplace.

One hour later, the temperature was 7° higher.

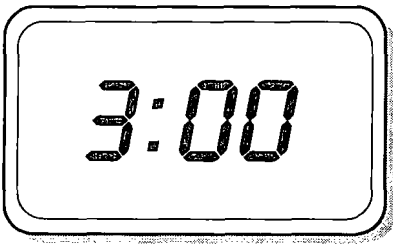
10. What time was it when it reached this new temperature?



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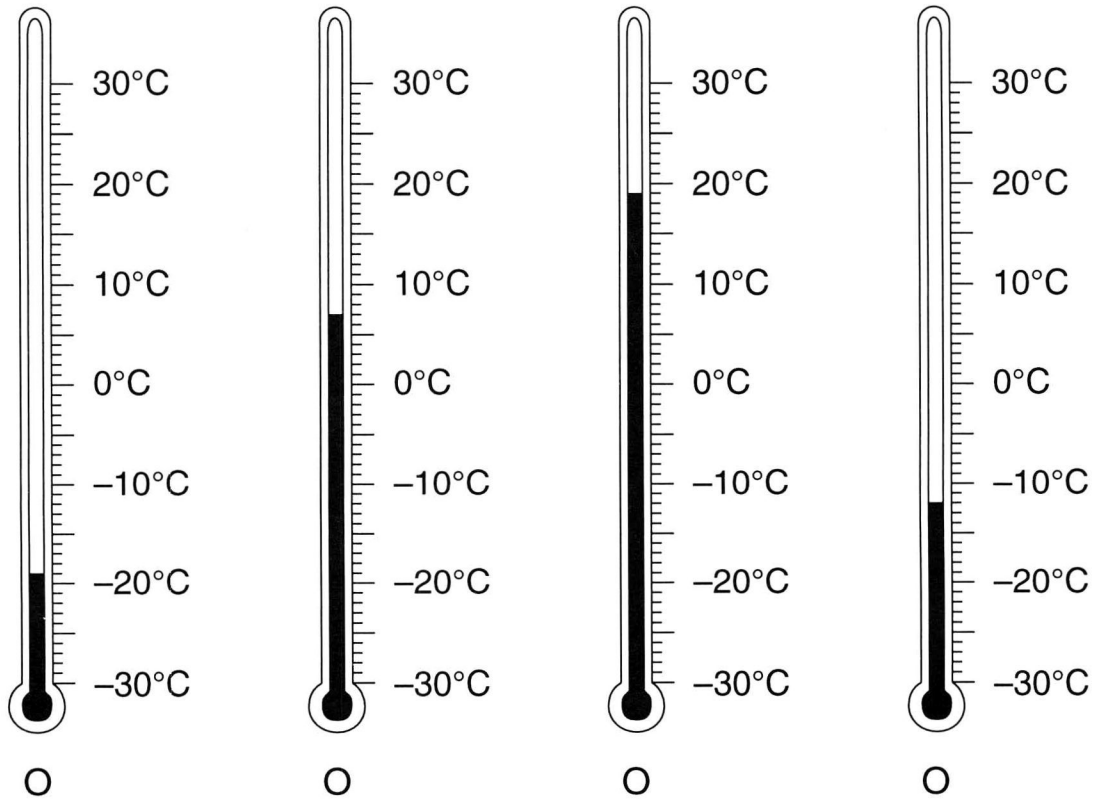


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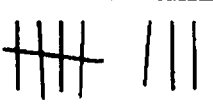
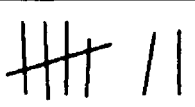
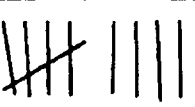
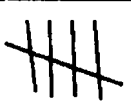
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11. Which thermometer shows the temperature one hour later?



Use this information to answer questions 12 and 13.

On the way home, we counted the number of animals we saw from the car. We made this tally sheet.

Mom	Ryan	Sarah	Cathy
			

12. What is the total number of tallies on the chart?

- ☐ 23
- ☐ 25
- ☐ 27
- ☐ 29

13. How many MORE tallies do Ryan, Cathy, and Sarah have all together than Mom has?

- ☐ 12
- ☐ 13
- ☐ 21
- ☐ 27

“Did you have fun at Pioneer Village?” asked Mom.

“I had a great time!” I said.

That night, I fell fast asleep thinking about all the fun I had!

Key and Descriptors for Practice Multiple-Choice Questions

Item	Key	Program Strand	Reporting Category*	Curriculum Standard
1	B	Operations and Properties	K	Find the sum of two three-digit numbers by regrouping
2	C	Measurement	S	Estimate height using metres
3	D	Numeration	K	Use the concept of $\frac{1}{2}$
4	B	Measurement	S	Measure distances and use a scale
5	C	Numeration	S	Recognize counting pattern of five
6	C	Operations and Properties	S	Interpret a chart; calculate a sum of money
7	up/80	Data Management	S	Construct a simple bar graph
8	A	Geometry	K	Identify a three-dimensional figure
9	D	Operations and Properties	K	Multiply a two-digit number by ten
10	B	Measurement	K	Recognize clock showing time after one hour
11	C	Operations and Properties	S	Add two numbers and identify a thermometer's temperature
12	D	Data Management	S	Interpret a tally chart
13	B	Operations and Properties	S	Add three numbers to solve a two-step problem

* S—Skills includes problem solving and application of knowledge.

K—Knowledge includes knowledge of facts, concepts, generalizations, and procedures.

Practice Timed Number Facts Questions

ADDITION

$\begin{array}{r} 2 \\ + 5 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ + 4 \\ \hline \end{array}$	$\begin{array}{r} 0 \\ + 2 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ + 7 \\ \hline \end{array}$
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$4 + 6 =$	$2 + 4 =$	$7 + 5 =$	$3 + 8 =$	$9 + 9 =$
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SUBTRACTION

$\begin{array}{r} 10 \\ - 1 \\ \hline \end{array}$	$\begin{array}{r} 16 \\ - 9 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ - 4 \\ \hline \end{array}$	$\begin{array}{r} 11 \\ - 8 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ - 4 \\ \hline \end{array}$
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$9 - 5 =$	$8 - 2 =$	$16 - 8 =$	$12 - 7 =$	$3 - 3 =$
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MULTIPLICATION

$\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 1 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$
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$6 \times 0 =$	$2 \times 9 =$	$7 \times 7 =$	$8 \times 6 =$	$4 \times 5 =$
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Preparing Students for the Test

The best way to prepare students for the achievement tests is to teach the curriculum well and to ensure that children know what is expected. Many of the skills and attitudes that support test writing are in fact good skills and strategies for approaching all kinds of learning tasks.

Teachers may also wish, however, to familiarize their students with the format of the multiple-choice component of the test and the kinds of questions that will appear on it by having them work through the practice questions included in this bulletin.

We hope that teachers will share the following information with their students to help them prepare for the mathematics test.

Suggestions for Answering Multiple-Choice Questions

The following suggestions are provided to help prepare students for the Grade 3 Mathematics test.

1. Have students listen to the story **BEFORE** they complete the mathematics questions.

This will give students a setting for the questions so that they will be more meaningful.

2. Guide students to look at **ALL** information and to think carefully before they answer the questions.

This will guide them to obtain information from numbers, words, signs, charts, pictures, graphs, or maps.

3. Encourage students to **REMEMBER** the question that they need to answer as they look at all the information.

This will help them focus on what is being asked of them.

4. Encourage students to go back and **REVIEW** the information given.

This will help them keep on track when two or three questions pertain to the same diagram. (Situations like this are always identified with these words: "Use this information to answer questions ☐ and ☐.")

5. Encourage students to **CHECK** their calculations, even when their answer is one of the choices.

This will help them choose the correct answer rather than an answer that is a commonly made mistake.

6. Encourage students to choose one **BEST** answer.

This will help them make a choice when two answers appear to be close and they can't identify the correct answer right away.

For further suggestions, see *Teaching Students with Learning Disabilities*, Alberta Education, Special Education Branch, pages LD 122 to 124.

Interim Policy: Use of Calculators on Alberta Education Achievement Tests

September 1997

From their early years in school, students are expected to become increasingly familiar with calculators and confident in using them to solve problems. Nevertheless, students need to have mastered basic addition facts (to 18), subtraction facts (to 18), and multiplication facts (to 49). To respect this principle as well as the problem-solving nature of the new curriculum, there will be two components to the Grade 3 Mathematics Achievement Test. Those students for whom the four-function calculator is a familiar classroom tool **are encouraged, but not required**, to use a calculator when writing the multiple-choice component of the Grade 3 Mathematics Achievement Test; however, they **shall not** use calculators when writing the Timed Number Facts component of the test.

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